Project Development Phase
Model Performance Test

Date	9 November 2023
Team ID	Team-592312
Project Name	Car Purchase Prediction using ML

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No	Parameter	Values	Screenshot
1.	CLASSIFICATION REPORT a)LOGISTIC REGRESSION		`print(classification_report(y_test,pred))` precision recall f1-score support 0 0.91 1.00 0.95 58 1 1.00 0.73 0.84 22 accuracy 0.93 80 macro avg 0.95 0.86 0.90 80 weighted avg 0.93 0.93 0.92 80
	b) K_nearest neighbors[KNN]		`print(classification_report(y_test,y_pred))` precision recall f1-score support 0 0.98 0.95 0.96 58 1 0.88 0.95 0.91 22 accuracy 0.95 80 macro avg 0.93 0.95 0.94 80 weighted avg 0.95 0.95 0.95 80
	c) Decision tree classification		`print(classification_report(y_test,pred_cv))` precision recall f1-score support 0 0.96 0.95 0.96 58 1 0.87 0.91 0.89 22 accuracy 0.94 80 macro avg 0.92 0.93 0.92 80 weighted avg 0.94 0.94 0.94 80
	d)random forest classification		`print(classification_report(y_test,pred3))` precision recall f1-score support 0 0.98 0.93 0.96 58 1 0.84 0.95 0.89 22 accuracy 0.94 80 macro avg 0.91 0.94 0.92 80 weighted avg 0.94 0.94 0.94 80

<table>
<tr>
<td></td>
<td>e) Support Vector Machine (SVM) classification

f) Naïve Bayes</td>
<td></td>
<td>
<pre>print(classification_report(y_test,pred5))

              precision   recall f1-score   support

           0   0.97   0.97   0.97   58
           1   0.91   0.91   0.91   22

    accuracy   0.95   80
   macro avg   0.94   0.94   0.94   80
weighted avg   0.95   0.95   0.95   80</pre>

<pre>print(classification_report(y_test,pred6))

              precision   recall f1-score   support

           0   0.93   0.97   0.95   58
           1   0.90   0.82   0.86   22

    accuracy   0.93   80
   macro avg   0.92   0.89   0.90   80
weighted avg   0.92   0.93   0.92   80</pre>
</td>
</tr>
<tr>
<td>2.</td>
<td>Accuracy
a)LOGISTIC REGRESSION

b) K_nearest neighbors[KNN]

c) Decision tree classification

d)random forest classification

d) Support Vector</td>
<td>Accuracy =92.5

Accuracy =95

Accuracy =93.75

Accuracy =93.75

Accuracy =95</td>
<td>
<pre>score1=accuracy_score(y_test,pred)
score1</pre>
<pre>0.925</pre>
<pre>score=accuracy_score(y_pred,y_test)
score</pre>
<pre>0.95</pre>
<pre>score_cv=accuracy_score(y_test,pred_cv)
score_cv</pre>
<pre>0.9375</pre>
<pre>score4=accuracy_score(y_test,pred3)
score4</pre>
<pre>0.9375</pre>
</td>
</tr>
</table>

	Machine (SVM) classification e)Naïve bayes	 Accuracy =92.5	[91] score5=accuracy_score(y_test,pred5) score5 0.95 score7=accuracy_score(y_test,pred6) score7 0.925

3.	Confidence Score (Only Yolo Projects)	Class Detected - NA Confidence Score - NA	Not Applicable

Screenshot:

CLASSIFICATION REPORT

a)LOGISTIC REGRESSION

```
print(classification_report(y_test,pred))
```

```
              precision    recall  f1-score   support

           0       0.91      1.00      0.95        58
           1       1.00      0.73      0.84        22

    accuracy                           0.93        80
   macro avg       0.95      0.86      0.90        80
weighted avg       0.93      0.93      0.92        80
```

b) K_nearest neighbors[KNN]

```
print(classification_report(y_test,y_pred))
```

```
              precision    recall  f1-score   support

           0       0.98      0.95      0.96        58
           1       0.88      0.95      0.91        22

    accuracy                           0.95        80
   macro avg       0.93      0.95      0.94        80
weighted avg       0.95      0.95      0.95        80
```

c) Decision tree classification

```
print(classification_report(y_test,pred_cv))
```

```
              precision    recall  f1-score   support

           0       0.96      0.95      0.96        58
           1       0.87      0.91      0.89        22

    accuracy                           0.94        80
   macro avg       0.92      0.93      0.92        80
weighted avg       0.94      0.94      0.94        80
```

d)random forest classification

```
print(classification_report(y_test,pred3))
```

```
              precision    recall  f1-score   support

           0       0.98      0.93      0.96        58
           1       0.84      0.95      0.89        22

    accuracy                           0.94        80
   macro avg       0.91      0.94      0.92        80
weighted avg       0.94      0.94      0.94        80
```

e) Support Vector Machine (SVM) classification

```
print(classification_report(y_test,pred5))
```

```
              precision    recall  f1-score   support

           0       0.97      0.97      0.97        58
           1       0.91      0.91      0.91        22

    accuracy                           0.95        80
   macro avg       0.94      0.94      0.94        80
weighted avg       0.95      0.95      0.95        80
```

f) Naïve Bayes

```
print(classification_report(y_test,pred6))
```

```
              precision    recall  f1-score   support

           0       0.93      0.97      0.95        58
           1       0.90      0.82      0.86        22

    accuracy                           0.93        80
   macro avg       0.92      0.89      0.90        80
weighted avg       0.92      0.93      0.92        80
```

Accuracy

a)LOGISTIC REGRESSION

```
score1=accuracy_score(y_test,pred)
score1
```

```
0.925
```

Accuracy =92.5

b) K_nearest neighbors[KNN]

```
score=accuracy_score(y_pred,y_test)
score
```

```
0.95
```

Accuracy =95

c) Decision tree classification

```
score_cv=accuracy_score(y_test,pred_cv)
score_cv
```

```
0.9375
```

Accuracy =93.75

d)random forest classification

```
score4=accuracy_score(y_test,pred3)
score4
```

```
0.9375
```

Accuracy =93.75

d) Support Vector Machine (SVM) classification

```
[91] score5=accuracy_score(y_test,pred5)
     score5
```

```
0.95
```

Accuracy =95

e)Naïve bayes

```
score7=accuracy_score(y_test,pred6)
score7
```

```
0.925
```

Accuracy =92.5